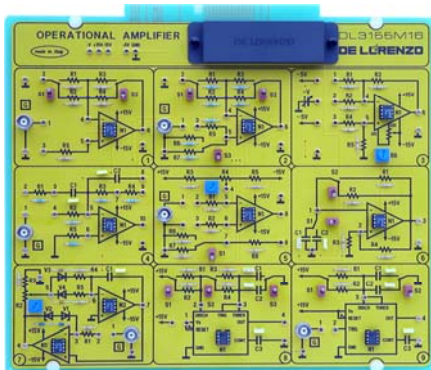




OPERATIONAL AMPLIFIERS



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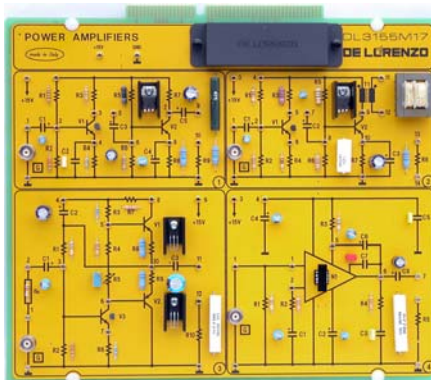
Theoretical topics:

- Ideal operational amplifier
- Concept of common mode and differential voltage
- The negative feedback
- Main operational amplifier linear configurations
- Concept of virtual mass
- Inverting and non-inverting configuration
- Inverting summing amplifier
- Zero and different from zero level detector
- Differential amplifier
- Integrator and derivator
- 741 operational amplifier
- The meaning of CMRR, V_{os} and slew rate
- Comparators, ramp and square wave generators
- Comparator circuit
- Transfer characteristics
- Inverting Schmitt trigger
- Square wave generator (astable multivibrator with operational amplifier)
- Ramp generator
- 555 integrated circuit as astable and monostable multivibrator
- Fault simulation

Circuit blocks:

- Inverting and non-inverting operational amplifier
- Operational amplifier parameters: CMRR, slew rate
- Offset voltage reduction, differential amplifier, summing amplifier
- Operational amplifier: integrator and shunt
- Comparator: inverting, non-inverting, with hysteresis (Schmitt trigger)
- Operational amplifier as astable multivibrator
- Ramp generator
- Timer 555 as astable multivibrator
- Timer 555 as monostable multivibrator

POWER AMPLIFIERS



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Theoretical topics:

- Typical problems relevant to power devices
- Power amplifier parameters
- Classification of the output stages
- Harmonic distortion
- Heat dissipation
- Main circuit configurations
- Class A amplifiers
- Amplifiers with load run by direct current
- Amplifier with output transformer
- Class B output stage
- Fault simulation

Circuit blocks:

- Class A power amplifier
- Class A power amplifier with transformer coupling
- Class AB power amplifier
- Integrated power amplifier